is a valuable contribution, by Capt. A. W. Hill, to our knowledge of a genus which yields two drugs of such importance as strychnine and brucine. A useful communication on the study of plant diseases is embodied in Mr. W. B. Brierley's account of the action of the fungus *Botrytis cinerea* in causing the death of a tree of *Aesculus Pavia* in the Royal Botanic Gardens. There are also several articles embodying the results of the systematic botanical work of the Kew Herbarium; and a short note of more general interest on the flora of the Somme battlefield (abridged in NATURE of February 14 last). A number of miscellaneous notes contain items of economic or general or special botanical interest.

THE MAP AS A NEW EDUCATIONAL INSTRUMENT.

Map Work. By Major V. Seymour Bryant and Lieut. T. H. Hughes. Pp. 174. (Oxford: At the Clarendon Press, 1918.) Price 5*s*. net.

AFTER reading through "Map Work," one is drawn back irresistibly to the Introduction, in which the authors direct attention to the great value of map work both in its utilitarian and its educational aspects, and put forward a convincing claim for its inclusion in the school curriculum. Even in the narrow work of the school itself it provides material for the better understanding of mathematics, geography, and history, the last-named being a subject which demands a much greater appreciation of the relief map than is usually conceded; it gives exercise in the various branches of "drawing," and lastly it gives a rational and legitimate stimulus for the getting of accuracy.

In a wider sense it provides a congenial method of education to many for whom the ordinary school subjects hold little that is attractive when the period of adolescence is reached; and now that we are soon to be faced with a considerable influx of adolescents drawn from schools of widely differing aims and attainments, and where the examinational aspect of the various subjects has not been catered for to any great extent, it will be necesary to open up new avenues of attractiveness, and map work is certainly one of those that should have serious consideration.

Finally, there is the question of the understanding of the landscape by the ordinary layman. Generally this is held to be the domain of the artist. The foreground can be made to fit the map by most people, but the background is too often "blue hills" or "purple mountains," interesting as part of a picture, but otherwise a formless and meaningless confusion.

Map-making, in conjunction with the seemingly difficult, though really simple, art of panorama-sketching, should provide a sure method of introducing form and meaning into the landscape.

The principal aim of "Map Work" is to teach map-reading by means of map-making. Generally speaking, it bridges the gulf that exists between the very elementary work of the practical geographies on one hand, and the technical treatises of the professional surveyor and map-maker on the other. It is suitable for O.T.C.'s and cadet units and for the Oxford Senior Locals, but its value to the general student is very great indeed. Only the topographical map is dealt with, more especially the Ordnance map, but every aspect of this map is adequately and concisely treated, with special chapters on the various methods of surveying, map enlargement, field-sketching, and panorama-sketching. The appendices, which are of considerable length, give an excellent scheme of practical work with much valuable information on the use of materials and the making and use of apparatus. The whole has been read by Col. Close, of the Ordnance Survey, and is full of practical suggestions.

There is one further suggestion that might be made in regard to setting the map by the sun. If the pin or pencil used to cast the shadow be held at an angle, approximately that of the latitude, a better result is obtained than by holding it vertically.

E. J. ORFORD.

OUR BOOKSHELF.

Flora of the Presidency of Madras. By J. S. Gamble. Part ii. Pp. 201–390. (London: Adlard and Son and West Newman, Ltd., 1918.) Price 8*s*. net.

THE second part of the flora of the Presidency of Madras has followed fairly soon on the first, and, like its predecessor, has been very carefully prepared. The natural families dealt with are all those from the Celastræcæ to the end of the Papilionatæ sub-family of the Leguminosæ.

As with the previous part, there is a careful description of each natural family, including details of fruits and seeds, and this is followed by a key to the various genera. Each genus likewise is furnished with a full description and followed by a thoroughly comprehensive key to the several species. These specific keys, together with the ample generic description, convey so much information about the different plants that only a line or two of description are needed under each species in addition to the particulars about its habitat, local name, etc.

The flora, it will be noticed, contains several new species which have been discovered by Mr. Gamble in his re-examination of the material at his command. The majority of the new species have been previously described in the *Kew Bulletin.*

The war has naturally hampered the preparation of the flora, and unfortunately prevented the valuable Madras collections from being sent home for examination. For this second part, however, the Calcutta specimens have been available, as well as the extensive collections at Kew and elsewhere.

For the third part Mr. Gamble proposes to work through the material available in this country,

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which fortunately is plentiful, as it will not be possible to receive further supplies of specimens from India. The flora is so clear and well arranged that it ought to prove of great value in Madras.

A Complete Course of Volumetric Analysis for Middle and Higher Forms of Schools. By W. T. Boone. Pp. viii+164. (London: Blackie and Son, Ltd., 1918.) Price 3*s.* 6*d.* net.

IT is generally recognised that a well-planned course of chemical analysis by volumetric processes provides good intellectual and manipulative training in scientific methods. Careful thought, clear reasoning, and habits of accuracy are fostered by it. One may hope, indeed, that the time is not far distant when all students in our public schools, whether on the "classical" or on the "modern" side, will receive some such training as a normal part of their education, apart altogether from any question of a contemplated career in chemistry.

For such a course Mr. Boone's little book supplies an excellent basis. It "begins at the beginning," and leads the student on by easy but educative stages to quite advanced work. The numerous exercises are very well devised, and ample directions and explanations are given. A useful feature is the interspersed questions on points suggested by the experiments: they focus the learner's attention on matters of special importance. The experiments include the preparation of indicators and standard solutions, as well as analytical exercises; and there is a chapter, short and sufficiently simple, explaining the behaviour of indicators on the usual theory of ionic dissociation. The book can be confidently recommended. C. S.

The Statesman's Year Book, 1918. Edited by Sir J. Scott Keltie, assisted by Dr. M. Epstein. Pp. xlviii+1488. (London: Macmillan and Co., Ltd., 1918.) Price 18*s.* net.

THIS ever-welcome annual contains the usual familiar features. The bibliographies have been brought, so far as is possible, up to date. Some of this statistical material "cannot be given," other parts are "provisional," for obvious reasons; but an effort has been made to cope with the abnormal conditions. A notable conspectus of the world's pre-war traffic in foodstuffs is provided in a folding map showing relative exports and imports. From an inset diagram we learn that the United States food production just equalled the requirements of the country; only Russia, Canada, and Argentina produced an excess; while the United Kingdom provided for just above half the required quantities of foodstuffs; though Canada is given, Australia is omitted. Among the introductory tables we note one dealing with sugar. During the war the world's supply of sugar has decreased by 20 per cent.; the production of sugar from the sugar-beet declined by more than 40 per cent., that from the cane has grown by 20 per cent., the output from Java having increased by 40 per cent.

LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. *No notice is taken of anonymous communications.]*

Auroral Observations in the Antarctic.

IN NATURE for April 11 last Dr. Chree reviewed Sir Douglas Mawson's paper on "Auroral Observations at the Cape Royds Station, Antarctica," and directed attention to the impression the observers received that the aurora was sometimes seen in the lower atmosphere between them and Mount Erebus. A similar statement had appeared in Shackleton's book, "The Heart of the Antarctic" (vol. ii., pp. 360–61), before Scott's expedition left for the South. As this subject is of fundamental importance in all discussions of the origin and nature of the aurora, I arranged with all members of the expedition that I should be called whenever they saw, or thought they saw, an aurora in front of Erebus.

Observations of this phenomenon were made on three occasions, and luckily I was at hand each time. I reproduce here, verbatim, the notes I made immediately after each occurrence:—

"(*a*) *May* 21, 1911.—This evening there was a bright aurora, and word came in to me that the aurora beams were clearly visible between here and Erebus. On going out it appeared for some moments that this was so, but on looking closely I came to the conclusion that the effect was an illusion. The moon was low in the south, and only one or two shoulders of Erebus were lit up by it; these, however, formed more or less clear bands of light from top to bottom of the mountain. When the aurora was bright above the mountain these moonlight bands appeared as continuations of the aurora beams, and it was quite easy to imagine them in motion owing to the bright and rapid motion of the aurora itself. Dr. Wilson agreed with me in this explanation, but Dr. Atkinson, Wright, and Ponting continued to hold firmly that they had really seen the aurora in the lower atmosphere this side of the mountain.

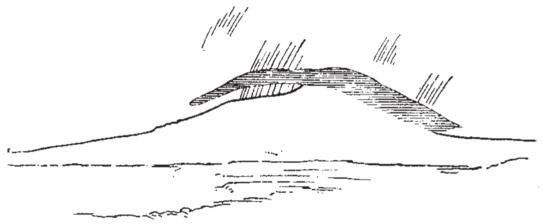

FIG. 1.

"(*b*) *June* 22, 1911.—At about 21h. 30m. Meares reported an aurora this side of Erebus. On going out to examine, I found that the effect had disappeared; the explanation, however, seemed simple. The top of Erebus was covered with a cloud-cloak, which had an external form almost like that of the mountain. At one side, however, it was incomplete, and no doubt the aurora was seen between the cloud here and the mountain. In the dim light the outline of the cloud was taken to be that of the mountain, so that the aurora appeared to be in front of the mountain. (Fig. 1.)

"(*c*) *July* 19, 1911.—At 5 a.m. Meares reported to me an aurora in front of Erebus. On going out, there appeared to be a very bright beam of aurora low down on the foothills of the mountain, and obviously

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